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Highlights

James D. Nobles*, **Arnaldo Perez**, **Joseph A. Skelton**, **Nicholas D. Spence**, **Geoff D. Ball**

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The engagement pathway: A conceptual framework of engagement-related terms in weight management

- Engagement denotes the extent to which, and how, people participate in a service.
- Our understanding of engagement is greatly hampered due to inconsistent terminology.
- We introduce the engagement pathway to define a host of engagement-related concepts.
- We distinguish between terms such as 'drop-out', 'non-completion' and 'attrition'.
- Adoption of these defined concepts will advance our understanding of engagement.

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REVIEW

The engagement pathway: A conceptual framework of engagement-related terms in weight management

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Summary Engagement denotes the extent to which, and how, individuals participate in weight management (WM) services. Effective WM services should generate meaningful outcomes *and* promote high participant engagement; however, research is predominantly focused on the former. Given that engagement is a poorly understood phenomenon, and that engagement-related concepts are often used synonymously (*e.g.*, dropout and attrition), the engagement pathway is hereby introduced. This pathway defines key concepts (*e.g.*, recruitment, adherence, attrition) and their relationships in the enrolment, intervention, and maintenance stages of treatment. The pathway will help researchers and practitioners better understand engagement-related concepts whilst encouraging greater conceptual consistency between studies.

Abbreviations: CONSORT, Consolidated Standards of Reporting Trails; DH, Department of Health (UK); NICE, National Institute for Health and Care Excellence (UK); NIH, National Institutes of Health (USA); WM, weight management.

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Contents

Introduction

Engagement is a complex and multifactorial phenomenon that is essential to the effectiveness of health services [1–3]. Health services must be designed to promote clinically significant health improvements *and* facilitate engagement [4–6]. Engagement denotes the extent to which, and how, individuals participate in an intervention or service [7]. In this respect, the term *engagement* encompasses a range of concepts in the delivery of health services, including treatment initiation, dropout, attrition, retention, and adherence [7]. Whilst the outcomes of interventions are dependent on the engagement of individuals (*i.e.*, patients, families, participants) and health care professionals, engagement — and the associated concepts — are poorly understood. This conceptual paper is written from the viewpoint of weight management (WM) programs or services (WM services used hereafter), but many concepts could be translated to health improvement services more broadly (*e.g.*, smoking cessation, cardiac rehabilitation, and physical activity) [1,2,8,9].

Engagement is important from multiple perspectives. For individuals with obesity, higher WM service attendance is associated with more favourable weight management [7,10,11]. Further, dropping out of a WM service could denote a failed weight loss attempt, which may be linked to feelings of frustration, discouragement, and learned helplessness. For researchers, attrition affects the internal- and external-validity of study findings [1,9,11], whilst for practitioners, participant engagement affects cost-effectiveness of service delivery, the time required for recruitment, and the accurate representation of service impact (*e.g.*, scale-up, reach, and dissemination) [11,12]. With that in mind, expert 'recruitment and retention' groups have been formed to counter the troublesome burden of low participant engagement in health services and research — *e.g.*, NIH Behaviour Change Consortium [1].

In general, research investigating engagement in WM services can be grouped into three categories, including predictors of engagement, reasons for engagement, and strategies to enhance engagement [12–15]. Evidence reviews have synthesised these three fields of research [4,12,13,15,16], but conclusions are limited due to inconsistent terminology and criteria for engagement-related terminology. In a recent call to action, [11] identified 27 obesity intervention studies and found no consistent operational definitions and/or criterion for attrition and program completion. This issue is further complicated due to overlap and close relationships between engagement-related terms, which often lead to terms (*e.g.*, attrition and dropout, completion and retention) being used interchangeably when often they refer to interrelated, but separate, issues.

Such methodological challenges also create difficulties when trying to determine WM service effectiveness. Exemplifying this point, [17] undertook a sensitivity analysis to evaluate how different completion criteria influences the interpretation of outcomes in a pediatric WM service. In the first example, when completion was defined as attending the last program session [18], 50.5% of participants completed the service with a mean reduction of 0.14 units in standardised body mass index (BMI). The second example applied a more stringent criterion — attending all program sessions [19] — 11.1% of participants completed the program with a mean standardised BMI reduction of 0.20 units. Given that these two program outcomes are proxy measures of WM service effectiveness [20,21], the impact of adopting one criterion over another is highly relevant. Spence et al. [22], de Niet et al. [23] and Dolinsky et al. [24] also provide similar empirical examples for how different classifications of dropout affect the respective predictors. Therefore, to advance research, understanding and practice in this area, it is imperative to identify and define engagement-related concepts and their relationships.

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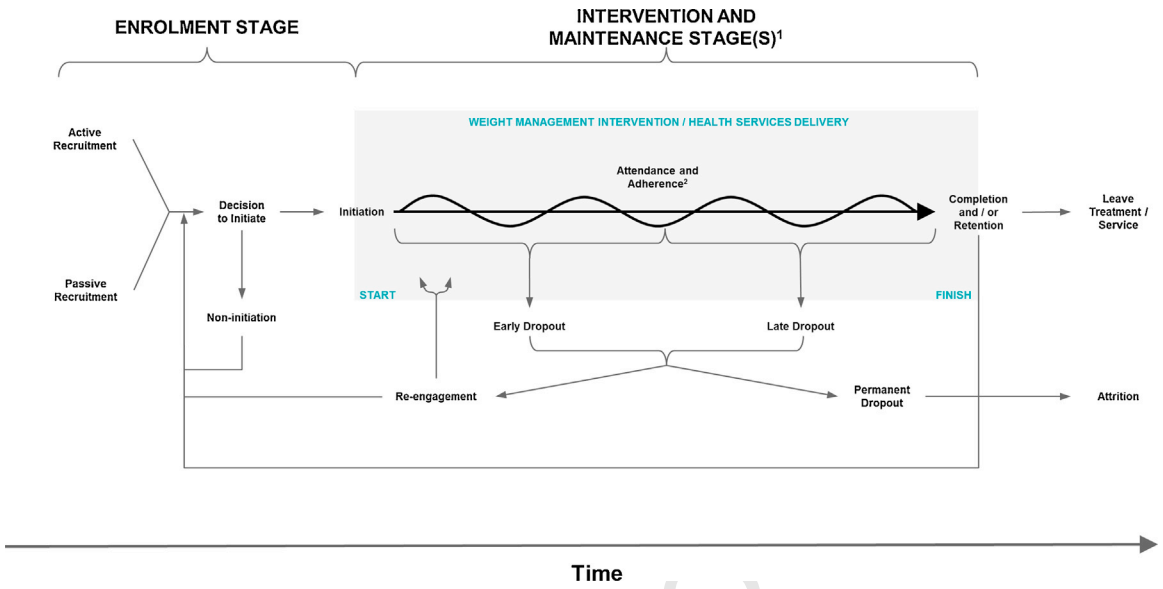

Figure 1 The engagement pathway.
[1]Treatment may include a maintenance intervention.
[2]Solid line = consistent attendance and adherence; wavy line = inconsistent attendance and adherence.

The purpose of our paper is to propose a conceptual framework for engagement, one that highlights key concepts and their relationships in a processual manner, defined collectively as the engagement pathway. In doing so, we hope to encourage greater consistency and specificity regarding engagement-related concepts, outcomes that are relevant to both research and health service delivery.

The engagement pathway

The engagement pathway (Fig. 1) highlights key concepts related to three stages of a WM service (enrolment, intervention, and maintenance/follow up stages) and their relationships. The stages and concepts described herein can apply to both pediatric and adult obesity, with particular attention to WM services that emphasise lifestyle and behavioural changes for managing obesity. Key concepts include: recruitment, (non-) initiation, attendance, adherence, completion, retention, dropout, and attrition, all of which are operational at different stages along the pathway.

Individuals are likely to move through this pathway in various ways, dependent on the decisions made regarding their engagement. Although many of the processes within this pathway will be influenced by automated, sub-conscious decision making of the participating individual or family, WM service engagement is an intentional behaviour largely driven by conscious, reflective decision making [12,25,26]. Multiple re-engagement routes exist within the pathway to emphasise that individuals may re-engage in a service at different points in time (*e.g.*, after deciding not to initiate or dropping out of treatment).

Enrolment

The enrolment stage includes recruitment, the decision to initiate treatment, and the outcome of this decision (initiation or non-initiation). *Recruitment* refers to the methods used to reach and inform individuals about available WM services, which are often classified as active (potential participants are targeted specifically) and passive methods (individuals identify themselves as potential participants) [27–29]. Whilst the effectiveness of active and passive methods is inconsistent [27,29], the recruitment literature suggests that combined approaches may generate the greatest yield in terms of inquiries and enrolments [30]. Where passive methods can reach large numbers of eligible individuals with little resource required, active methods can target and motivate prospective participants with greatest potential to benefit from care. It is important that such blended recruitment approaches are adaptive (*i.e.*, responsive to change), collaborative (*i.e.*, utilise a body of expertise across disciplines), and dynamic (*i.e.*, evolve over time) to optimise engagement outcomes [30].

After being informed of, or referred to, WM services, potential participants decide whether or not

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to initiate the treatment intervention. This decision may be based on several factors including awareness of a health problem, perceived control over internal- and external-enrolment barriers, and efficacy attributed to the service [31]. However, it is important to differentiate *intenders* (those who formed the intention to initiate treatment) from *initiators* (those who were able to act upon their intention to commence treatment) since some *intenders* may not actually enrol in treatment due to internal- (*e.g.*, experiencing a health problem) and external-barriers (*e.g.*, not able to afford transportation costs). Research has found that a sizable proportion of intenders do not initiate their respective WM service [7,32]. Consequently, strategies to enhance treatment initiation should be tailored to individuals' level of readiness for treatment [33,34]. Exploring potential barriers and providing support accordingly may be an effective strategy for those who have formed the intention to initiate treatment [31], and theoretically informed tools such as the Readiness and Motivation Interview [33] could help assess readiness for treatment.

With respect to enrolment, two other points merit discussion. First, practitioners may deem prospective participants ineligible for WM if they do not satisfy an entry criterion (e.g. objective presence of an obesity-related co-morbidity) — thus functioning as *de facto* gatekeepers influencing and/or controlling the enrolment decisions of individuals and families. The dimension of the service provider(s) should thus be acknowledged in the enrolment stage. Second, in the context of randomised controlled trials, participants could be assigned to a control group or wait-list group. Dependent upon the trial design and type of control, participants may receive a variant type of intervention (whereby all engagement concepts would be operational) or receive no intervention (only some engagement concepts would be operational). For individuals assigned to a wait-list group, the point of intervention initiation may be off-set or delayed by a pre-defined time period. The transparent reporting of control group engagement is as important therefore as that of the active intervention group.

Intervention

Individuals who initiate WM services are viewed to be within the intervention stage of treatment. *Attendance* and *adherence* are two prominent, interconnected factors associated with this stage. Attendance refers to individual's presence in a WM session, making it an easily obtainable and quantifiable measure of engagement [17]. Attendance enables engagement patterns to be examined and for additional engagement-related criteria to be formed (*e.g.*, completion and dropout) [7]. On the other hand, adherence has multiple dimensions (*e.g.*, when, how, with respect to what) and is generally defined as the extent to which individuals follow treatment recommendations [4]. Whilst attendance is sometimes used as a proxy measure of adherence, attendance and adherence are not mutually exclusive. Adherence can encompass both adherence to treatment sessions (*sessional* adherence) and adherence to treatment recommendations (*treatment* adherence). Also, health care providers' adherence to delivery protocols and guidelines can influence treatment outcomes (*delivery* adherence, also known as fidelity). Treatment adherence is included within Fig. 1, and as shown, individuals may exhibit different patterns of attendance in, and adherence to, a WM service.

Many individuals will prematurely leave WM services (*i.e.*, dropout of treatment) [13,15]. *Dropping out* is the decision to prematurely disengage from WM services [15,35], which can happen at various time points throughout the service. Some individuals may *re-engage* in the WM services, but to our knowledge, no empirical reports have documented the re-engagement of individuals within treatment services. If individuals permanently dropout (*i.e.*, do not re-engage), this leads to *attrition*. Accordingly, attrition represents a reduction in group size and is the product of dropout.

Completion is an operational definition characterised by the fulfilment of a predefined criterion, ideally driven by empirical data or guided by professional experience/expertise. This criterion can be established relative to an attendance threshold (*e.g.*, attend ≥70% WM sessions); individuals satisfying this criterion are usually classified as completers. On the contrary, *retention* refers to the keeping of individuals in a WM service [2]. Thus, retained individuals may not satisfy or exceed the required attendance threshold to complete the service, a notable difference that is relevant conceptually and analytically.

There are numerous considerations associated with engagement in the intervention stage. First, it is important to collect routine attendance data to determine the extent of intervention attendance, which can be associated with intervention effectiveness (*i.e.*, a dose-response). Second, given that the dose-response relationship also depends on the level of treatment adherence, data on adherence (*e.g.*, goal tracking and behavioural monitoring) should also be collected routinely. Third, there is a need to understand *who* engages in a WM service, which relates to availability and accessi-

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bility. Strategies can be developed and WM services refined if the intended audience is not engaged, which can mitigate the widening of health inequalities. Last, where strategies are being utilised to encourage engagement, rigorous evaluation and reporting are needed to establish effectiveness. Most engagement strategies are not evaluated [14,27], possibly because engagement is often viewed as a secondary or tertiary outcome and, as such, does not receive as much attention or interest.

Maintenance/follow-up

The maintenance stage is reliant on the WM service design. Some WM services include a maintenance intervention whilst others do not [5,36]. In line with the type of maintenance intervention available, many of the aforementioned terms remain operational. For example, if a maintenance intervention requires in-person session attendance, then attendance, adherence, retention, completion, dropout and attrition should be reported during this period in the same manner as in the intervention stage. Treatment adherence may become more pertinent in the maintenance stage, with WM services designed to instil sustainable health behaviours amongst individuals [36]. Correspondingly, maintenance interventions typically shift the attribution of outcomes from WM services to individuals, with self-management of obesity being the promoted strategy. Whilst some individuals may decide to re-commence the treatment service, others will permanently leave the service at this point.

Applying the pathway

The purpose of the pathway is to exemplify the range of engagement-related terms that are operational within a WM service. The pathway defines each of the concepts, highlights the nuances, and documents the interconnections between concepts and stages. The pathway could be used to identify time points in the WM service (*e.g.*, recruitment, initiation, early intervention) that may benefit from engagement-promoting strategies. Where evidence is available, research has suggested that orientation sessions [10], a supplementary short messaging service [37], and motivational interviewing [38] can enhance initiation and reduce dropout. Data are required to determine the effectiveness of engagement strategies specific to time points within the engagement pathway. In order to move towards standardised reporting of engagement, systematic data collection is needed. The collection of session-by-session attendance data — within the intervention and maintenance stages — is an important and feasible first step.

Conclusion

Engagement is a key factor that mediates intervention effectiveness. Although research in the field of engagement is growing, non-standardised terminology creates ambiguity when comparing studies and making generalisations that are meaningful and appropriate [11,13,16]. The engagement pathway offers a means of standardising and advancing engagement-related research and terminology, which can enhance understanding and measurement of the phenomenon. The engagement pathway should be considered within the design and planning stages of WM services, and provisional strategies can be mapped against the pathway to document the approaches used to optimise engagement. We hope that the pathway, and the associated lexicon, will assist those working in the field of WM and health improvement services research by adding clarity and specificity in academic- and heath service-settings.

References

[1] Coday M, Boutin-Foster C, Goldman Sher T, Tennant J, Greaney M, Saunders S, et al. Strategies for retaining study participants in behavioral intervention trials: retention experiences of the NIH Behavior Change Consortium. Ann Behav Med 2005;29:55–65.

[2] Gitlin L, Czaja S. Behavioral intervention research: designing, evaluating and implementing. Springer Publishing Company; 2015.

[3] Schwartz D, Axelrad M. Healthcare partnerships for pediatric adherence: promoting collaborative management for pediatric chronic illness care. Springer International Publishing; 2015.

[4] Burgess E, Hassmen P, Pumpa KL. Determinants of adherence to lifestyle intervention in adults with obesity: a systematic review. Clin Obes 2017. Q7

[5] Oude Luttikhuis H, Baur L, Jansen H, Shrewsbury V, O'Malley C, Stolk R, et al. Interventions for treating obesity in children. Cochrane Database Syst Rev 2009:CD001872. Q8

[6] Wright N, Wales J. Assessment and management of severely obese children and adolescents. Arch Dis Child 2016. Q9

[7] Nobles J, Griffiths C, Pringle A, Gately P. Design programmes to maximise participant engagement: a predictive study of programme and participant characteristics associated with engagement in paediatric weight management. Int J Behav Nutr Phys Activ 2016;13(1):1–10.

[8] Abshire M, Dinglas V, Cajita M, Eakin M, Needham D, Himmelfarb C. Participant retention practices in longitudinal clinical research studies with high retention rates. BMC Med Res Methodol 2017;17(1):30.

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[9] Karlson C, Rapoff M. Attrition in randomized controlled trials for pediatric chronic conditions. J Pediatr Psychol 2008;34(7):782–93.

[10] Germann J, Kirschenbaum D, Rich B. Use of an orientation session may help decrease attrition in a pediatric weight management program for low-income minority adolescents. J Clin Psychol Med Settings 2006;13(2):169–79.

[11] Miller B, Brennan L. Measuring and reporting attrition from obesity treatment programmes: a call to action. Obes Res Clin Pract 2015;9(3):16.

[12] Kelleher E, Davoren M, Harrington J, Shiely F, Perry I, McHugh S. Barriers and facilitators to initial and continued attendance at community-based lifestyle programmes among families of overweight and obese children: a systematic review. Obes Rev 2016.

[13] Dhaliwal J, Nosworthy N, Holt N, Zwaigenbaum L, Avis J, Rasquinha A, et al. Attrition and the management of pediatric obesity: an integrative review. Child Obes 2014;10(6):1–13.

[14] Schoeppe S, Oliver M, Badland H, Burke M, Duncan M. Recruitment and retention of children in behavioral health risk factor studies: REACH strategies. Int J Behav Med 2014;21(5):794–803.

[15] Skelton J, Beech B. Attrition in paediatric weight management: a review of the literature and new directions. Obes Rev 2010;12(5):273–81.

[16] Moroshko I, Brennan L, O'Brien P. Predictors of dropout in weight loss interventions: a systematic review of the literature. Obes Rev 2011;12(11):912–34.

[17] Nobles J, Griffiths C, Pringle A, Gately P. Why consistent completion criterion are required in childhood weight management programmes. Public Health 2017;152:79–85.

[18] Jelalian E, Hart CN, Mehlenbeck RS, Lloyd-Richardson EE, Kaplan JD, Flynn-O'Brien KT, et al. Predictors of attrition and weight loss in an adolescent weight control program. Obesity 2008;16:1318–23.

[19] Herbert L, Gillespie C, Monaghan M, Holmes C, Streisand R. Factors associated with recruitment and retention in randomized controlled trials of behavioral interventions for patients with pediatric Type 1 diabetes. J Clin Psychol Med Settings 2015:1–14.

[20] NICE. Managing overweight and obesity among children and young people: lifestyle weight management services. London, UK: National Institute for Health and Care Excellence; 2013.

[21] NICE. Obesity: identification, assessment and management of overweight and obesity in children, young people and adults. London, UK: National Institute for Health and Care Excellence; 2014.

[22] Spence N, Newton A, Keaschuk R, Ambler K, Jetha M, Holt N, et al. Predictors of short- and long-term attrition from the parents as agents of change randomized controlled trial for managing pediatric obesity. J Pediatr Health Care 2016.

[23] de Niet J, Timman R, Jongejan M, Passchier J, van den Akker E. Predictors of participant dropout at various stages of a pediatric lifestyle program. Pediatrics 2011;127:164–70.

[24] Dolinsky DH, Armstrong SC, Ostbye T. Predictors of attrition from a clinical pediatric obesity treatment program. Clin Pediatr 2012;51:1168–74.

[25] Ball G, Garcia AP, Chanoine J-P, Morrison K, Legault L, Sharma A, et al. Should I stay or should I go? Understanding families' decisions regarding initiating, continuing, and terminating health services for managing pediatric obesity: the protocol for a multi-center, qualitative study. BMC Health Serv Res 2012;12(1):486–93.

[26] Perez A, Ball G. Paradoxically speaking about engagement in pediatric weight management. Pediatr Obes 2017.

[27] Cui Z, Seburg E, Sherwood N, Faith M, Ward D. Recruitment and retention in obesity prevention and treatment trials targeting minority or low-income children: a review of the clinical trials registration database. Trials 2015;16:564.

[28] Fleming J, Kamal A, Harrison E, Hamborg T, Stewart-Brown S, Thorogood M, et al. Evaluation of recruitment methods for a trial targeting childhood obesity: families for health randomised controlled trial. Trials 2015;16(1):535.

[29] Raynor H, Osterholt K, Hart C, Jelalian E, Vivier P, Wing R. Evaluation of active and passive recruitment methods used in randomized controlled trials targeting pediatric obesity. Int J Pediatr Obes 2009;4(4):224–32.

[30] Gupta A, Calfas K, Marshall S, Robinson T, Rock C, Huang J, et al. Clinical trial management of participant recruitment, enrollment, engagement, and retention in the SMART study using a Marketing and Information Technology (MARKIT) model. Contemp Clin Trials 2015;42:185–95.

[31] Perez A, Holt N, Gokiert R, Chanoine J, Legault L, Morrison K, et al. Why don't families initiate treatment? A qualitative multicentre study investigating parents' reasons for declining paediatric weight management. Paediatr Child Health 2015;20(4):179–84.

[32] Nguyen B, McGregor K, O'Connor J, Shrewsbury V, Lee A, Steinbeck K, et al. Recruitment challenges and recommendations for adolescent obesity trials. J Paediatr Child Health 2012;48(1):38–43.

[33] Ball G, Spence N, Browne N, O'Connor K, Srikameswaran S, Zelichowska J, et al. The readiness and motivation interview for families (RMI-Family) managing pediatric obesity: study protocol. BMC Health Serv Res 2017;17(1):261.

[34] Geller J, Avis J, Srikameswaran S, Zelichowska J, Dartnell K, Scheuerman B, et al. Developing and pilot testing the readiness and motivation interview for families in pediatric weight management. Can J Diet Pract Res 2015;76(4):190–3.

[35] Kazdin A, Holland L, Crowley M, Breton S. Barriers to treatment participation scale: evaluation and validation in the context of child outpatient treatment. J Child Psychol Psychiatry 1997;38(8):1051–62.

[36] Altman M, Wilfley D. Evidence update on the treatment of overweight and obesity in children and adolescents. J Clin Child Adolesc Psychol 2014:1–17.

[37] de Niet J, Timman R, Bauer S, van den Akker E, de Klerk C, Kordy H, et al. Short message service reduces dropout in childhood obesity treatment: a randomized controlled trial. Health Psychol 2012;31(6):797–805.

[38] Bean M, Powell P, Quinoy A, Ingersoll K, Wickham E, Mazzeo S. Motivational interviewing targeting diet and physical activity improves adherence to paediatric obesity treatment: results from the MI Values randomized controlled trial. Pediatr Obes 2014.

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